fw

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE**
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/002,915	10/23/2001	Yeong-Taeg Kim	SAM2.005	5069

23386	7590	11/22/2005

MYERS DAWES ANDRAS & SHERMAN, LLP
19900 MACARTHUR BLVD.,
SUITE 1150
IRVINE, CA 92612

EXAMINER
YENKE, BRIAN P

ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 11/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/002,915	KIM ET AL.
	Examiner	Art Unit
	BRIAN P. YENKE	2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

    A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS,
    WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Amendment (15 Sep 05)*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
    closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,6-10,14 and 16* is/are rejected.

7)☒ Claim(s) *2,4-5,11-13 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
        application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1.   The examiner previously found applicant's arguments persuasive with respect to the Jian reference, however upon further review/consultation the examiner will rely on the same reference, by modifying the rejection as shown below. In the event the applicant continues to disagree with the merits of the rejection, the examiner invites the applicant to call the examiner to discuss the case in order to expedite prosecution.

The examiner is relying on the same reference, however the examiner modified the rejection as shown, thus the previous arguments are moot.

Initially the examiner would like to clarify that although Jiang discloses a pixel difference unit 107, regardless of the terminology used (i.e. luminance difference, pixel difference, motion detection), the function/purpose of the difference unit is to ascertain a motion metric Δ, which is indicative of whether there is a difference between a pixel in prescribed fields, thus if there is no luminance difference (there is no motion), this is a fundamental concept of motion detection. Thus if the applicant disagrees that a pixel luminance value difference is not indicative of any motion, the examiner would like the applicant to state as such on the record. The examiner's position is the difference between a pixel's value whether brightness, contrast, or luminance/chrominance is indicative of motion/scene change, since there is a difference between pixels.

Regarding applicants statement that the luminance value differences are used not the motion metrics of any previous fields. The examiner disagrees. As stated above, any difference in luminance value is an indication of motion/scene change. In addition the detector 109 uses a

variety of luminance value difference including $\Delta=\max(\Delta c, \min(\Delta n, \Delta s))$ which obvious uses a previously field value.

Regarding claim 14, the applicant states that Jiang does not disclose all the limitations of claims 9 thus cannot disclose LPF the recursive motion detection parameter before output. The applicant states that Gowda is directed to a digital automatic gain control circuit for an image system.

The examiner responds initially that Jian does disclose all the limitation of claim 9 as recited below. Also, Gowda in the analogous art was incorporated to merely show the incorporation of a LPF is a conventional, well-known item, used to reduce noise in a system, and the incorporation of such a device produces expected results as such (i.e. no unexpected results are derived).

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 6, 7-10 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Jiang et al., US 2002/0027610.

In considering claims 1, 3 and 9-10,

a) the claimed inputting a video signal... is met by input 101, which receives an interlaced video

signal (Fig 1).

b) the claimed comparing mutually corresponding fields and defining a point-wise non-recursive

motion decision parameter is met by pixel different unit 107 and/or motion detection 109 (Fig 1),

which computes the motion metrics, which includes points between a previous field and a next

field (Fig 3), unit 107 calculates the luminance difference (presence of motion) for points c, n, s

and a as shown (para 23-24).   Motion detection 109 is able to detect motion about a region using

various luminance value differences (motion indicators, para 27-32). The specification defines

the "non-recursive" as motion detection from a few number of fields (i.e. $x(n-1)$ and $x(n+1)$ or

$x(n)$ and $x(n-2)$, thus although Jiang does not recite the term "non-recursive", Jiang does detect

motion as described in the applicant's specification which defines "non-recursive". Jiang

discloses as shown in Fig 3, motion can be about a point (i.e. $-c$, $-n$ and $-s$ (page 2, para 22—

27).

c) the claimed computing a recursive motion detection signal... is met by motion detection 109

(Fig 1), which computes the motion metrics, about a region utilizing the point detected motion

(i.e. $-a$ (page 2, para 24, and computing a max/min of the region utilizing the computed motion

about a point.   The applicant's specification defines "recursive" as motion detection

parameters which utilize the motion detection from previous fields, thus although Jiang does not

explicitly recite "recursive", Jiang does perform recursive motion detection since Jiang utilizes

the motion detection from 4 fields.

d) the claimed outputting the recursive motion decision parameter... is met where the motion

metrics computed by motion detector 109 are filtered via spatial median filter 110 and then LUT

111 obtains the weight (blending factor), for frame or field interpolation.

        In considering claim 6,

a) the claimed spatially interpolating a value of the video signal... is met by frame interpolator

105 (Fig 1)

b) the claimed temporally interpolating the value of the video signal... is met by field interpolator

106 (Fig 1).

c) the claimed forming a recursive motion decision value... (refer to rejection of claim 1/c,

above).

d) the claimed mixing an output signal... is met by alpha blender 112 (Fig 1) where the blending

of the video signal is based upon the motion value determines the blending of the field and/or

frame interpolation (page 3, Para 40-44).

        In considering claims 7-8,

        Jiang discloses that based upon the motion metric value which may take on a value

between 0 and 8, is used in determining the blending factor (motion decision value) which varies

between 0 and 1 (page 3, Para 42) based on the interpolation methods. As shown in Fig 5, when

there is little or no motion (motion metric value = 0-4) the field (temporal) interpolation is used,

where there is high or maximum motion (motion metric value = 5-8) the frame (spatial)

interpolation is used.   Thus the motion decision value (i.e. blending factor) is varied between 0

and 1 based upon a motion metric value between 0 and 8.

The motion decision value is met by spatial median filter 110 and LUT 11, where the

motion metrics computed by detector 109 are filtered via spatial median filter 110 and then LUT

111 obtains the weight (blending factor) for frame or field interpolation. LUT varies the decision

value of the motion signals computed using a blending factor of 1 or 0 as shown on page 3, para

42. Also, as stated by Jian, if there is motion then field/spatial interpolation is used and if there

is not motion frame/temporal interpolation is performed, thus anticipating the pending claims.

In considering claim 16,

a) the claimed an input... is met by input 101, which receives an interlaced video signal (Fig 1).

b) the claimed spatially interpolating a value of the video signal... is met by frame interpolator

105 (Fig 1)

c) the claimed temporally interpolating the value of the video signal... is met by field interpolator

106 (Fig 1).

d) the claimed an apparatus according to claim 9... (refer to rejection of claim 9, above).   It is

also noted that the motion detection is carried out in parallel with the spatial (frame) and

temporal (field) interpolation.

e) the claimed a mixer... is met by alpha blender 112 (Fig 1) where the blending of the video

signal is based upon the motion value determines the blending of the field and/or frame

interpolation (page 3, Para 40-44).

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over, Jiang et al., US

2002/0027610 in view of Gowda et al., US 6,275,259

In considering claim 14,

Regarding the use of a LPF connected to an output the recursive motion detection unit.

Jiang does disclose the use of a LPF 108 (Fig 1), however Jiang does not explicitly

disclose the use of a LPF prior to outputting.

However, the use of a filter (LPF), which is used to filter a signal, whether at the input,

output or in-between is a matter of design choice, based upon the size of the system, the

type/quality of the signal inputted/output and thus bares no patentable weight.

Based upon applicant's previous response, the examiner will incorporate Gowda (col 3,

line 10-21) which discloses adding a LPF prior to outputting a signal is optional, thereby

supporting the examiner's previous rejection that the addition of a LPF is not a patentable

distinct feature, since it is notoriously well known to include LPF throughout a system.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the

invention to modify Jiang which discloses the use of a conventional LPF and a smoothing filter

on the input to remove any unwanted signals/noise, with Gowda by optionally including a LPF at

the output, to also remove any unwanted signals/noise which may have attached to the desired signal.

Allowable Subject Matter

4.   Claims 2, 4-5, 11-13 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Yenke whose telephone number is (571)272-7359. The examiner work schedule is Monday-Thursday, 0730-1830 hrs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, John W. Miller, can be reached at (571)272-7352.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(571)-273-8300

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is

(703)305-HELP.

General information about patents, trademarks, products and services offered by

the United States Patent and Trademark Office (USPTO), and other related information is

available by contacting the USPTO's General Information Services Division at:

800-PTO-9199 or 703-308-HELP

(FAX) 703-305-7786

(TDD) 703-305-7785

An automated message system is available 7 days a week, 24 hours a day

providing informational responses to frequently asked questions and the ability to order

certain documents. Customer service representatives are available to answer questions,

send materials or connect customers with other offices of the USPTO from 8:30 a.m. -

8:00p.m. EST/EDT, Monday-Friday excluding federal holidays.

For other technical patent information needs, the Patent Assistance Center can be

reached through customer service representatives at the above numbers, Monday through

Friday (except federal holidays) from 8:30 a.m. to 5:00 p.m. EST/EDT.

The Patent Electronic Business Center (EBC) allows USPTO customers to

retrieve data, check the status of pending actions, and submit information and

applications. The tools currently available in the Patent EBC are Patent Application

Information Retrieval (PAIR) and the Electronic Filing System (EFS).

PAIR (http://pair.uspto.gov) provides customers direct secure access to their own patent

application status information, as well as to general patent information publicly

available. EFS allows customers to electronically file patent application documents

securely via the Internet. EFS is a system for submitting new utility patent applications

and pre-grant publication submissions in electronic publication-ready form. EFS

includes software to help customers prepare submissions in extensible Markup Language

(XML) format and to assemble the various parts of the application as an electronic

submission package. EFS also allows the submission of Computer Readable Format

(CRF) sequence listings for pending biotechnology patent applications, which were filed

in paper form.

BRIAN P YENKE
PRIMARY EXAMINER

B.P.Y
16 November 2005